

AMENDMENT TO THE CLAIMS

Please cancel claims 28, 29, 33, 35 and 36 without prejudice; amend claims 21-24, 26, 27, and 32, matter to be deleted is shown in strike through and matter to be added is shown in underline, and add new claims 40-42 as follows:

Claims 1-20 (cancelled)

21. (currently amended) A method of operating an oil burner, comprising the steps of:

- a) providing a source of oil;
- b) providing a source of heated liquid;
- c) providing a manifold constructed of a thermally transmissive solid block of material and having first and second displaced, continuous, unbroken channels formed into said material and wherein a nozzle having an oil distribution port is coupled to said first channel ~~first, second and third internal passageways formed into said material, and supporting a nozzle having an oil distribution port to said manifold to either block or unblock an outlet port of said third passageway;~~
- d e) coupling said source of oil to said first channel and said source of heated liquid to said second channel and wherein said first and second channels are arranged in said manifold such that heat from said heated liquid is transferred through said manifold to elevate the temperature of said oil immediately prior to being admitted to said oil distribution port, sources of said oil to said first passageway and said heated liquid to said second passageway, wherein said first passageway communicates with said oil distribution port, and wherein said first, second and third passageways are arranged in said manifold such that heat from said heated liquid is transferred through said manifold

~~to elevate the temperature of said oil immediately prior to being admitted to said nozzle;~~
and

e f) igniting the hot oil upon discharge from said oil distribution port.

22. (currently amended) A method as set forth in claim 21 wherein said nozzle includes a plurality of air atomizing ports and including the steps of providing a source of pressurized air, and coupling said air to said atomizing ports such that said air is isolated from mixing with said oil until said oil is emitted from said nozzle, whereby said heated oil is atomized with heated air upon discharge from said nozzle including the step of providing a source of pressurized air; coupling said source of pressurized air to said third passageway; providing said nozzle with air atomizing ports and supporting said nozzle in an unblocked condition relative to the outlet port of said third passageway such that said pressurized air communicates with said atomizing ports, and whereby said heated oil is atomized with heated air upon discharge from said nozzle.

23. (currently amended) A method as set forth in claim 22 wherein said manifold includes a third continuous channel, wherein said first, second and third channels are substantially arranged in displaced tiers, wherein a portion of said first channel passes through the tier containing said second channel, wherein said first channel terminates in a first cavity, wherein said third channel terminates in a second cavity coupled to said first cavity, wherein said nozzle includes a plurality air atomizing ports, and wherein an aft portion of said nozzle mounts in sealed engagement to said first cavity and a distal portion of said nozzle mounts to said second cavity and including the steps of providing a source of pressurized air and coupling said air to said second cavity such that said air is isolated from mixing with said oil until said oil is emitted from said nozzle, whereby said

heated oil is atomized with heated air upon discharge from said nozzle ~~first, second and third passageways are arranged within said manifold in displaced tiers, wherein said first passageway includes a portion that transects said second tier and communicates with a first cavity that aligns to said oil distribution port, wherein said third passageway communicates with a second cavity concentrically aligned to said first cavity that supports said nozzle.~~

24. (currently amended) An oil burner assembly, comprising:

a) a manifold i) constructed of a unitary body of a thermally transmissive material, ii) having first and second continuous, unbroken passageways, wherein said first passageway terminates in a first cavity, wherein a portion of a nozzle having an oil distribution port mounts in sealed engagement to said first cavity, first, second and third internal passageways defined in the material, wherein said first, second and third passageways are arranged in displaced tiers, wherein said first passageway includes a portion that transects said second tier and communicates with a distal first cavity, wherein said second passageway communicates with a second cavity coupled to said first cavity, and iii) wherein said first and second cavities are arranged to support either a nozzle with only an oil distribution port or a nozzle with an oil distribution port and an atomizing port and selectively locate a nozzle with only an oil distribution port to block said second passageway;

b) sources of oil and a heated liquid respectively coupled to said first and second passageways such that the liquid heats the manifold and transfers the heat to elevate the temperature of said oil admitted to said manifold immediately prior to discharge from said nozzle ~~oil, air and a heated liquid coupled to said respective first, second and third~~

~~passageways, such that heated liquid conveyed through said third passageway elevates the temperature of said oil and any admitted air, and wherein said nozzle can be selectively positioned in said first and second cavities to atomize or not the heated discharged oil with heated air; and~~

c) an igniter mounted to said manifold and aligned to said nozzle to ignite the heated oil ~~hot atomized oil~~ upon discharge from said nozzle.

Claim 25. Cancelled

26. (currently amended) An oil burner assembly as set forth in claim 24 wherein said first and second passageways comprise convoluted paths arranged in displaced tiers, wherein said first passageway includes a convoluted portion and ; a riser portion coupled to said convoluted portion that passes through the tier containing said second passageway and terminates in said first cavity ~~transects a portion of said second passageway.~~

27. (currently amended) An oil burner assembly as set forth in claim 24 including a third passageway that terminates in a second cavity coaxially coupled to said first cavity, wherein said nozzle includes a plurality of air atomizing ports contained in said second cavity and further including a source of pressurized air coupled to said second cavity such that said air is heated and isolated from said oil until immediately upon said oil being emitted from said nozzle ~~wherein air admitted to the second cavity is isolated from oil admitted to the first cavity.~~

Claims 28 and 29. Cancelled

30. (currently amended) An oil burner assembly as set forth in claim 27 ~~24~~ wherein said third ~~second~~ passageway includes ~~at~~ a narrowed region whereat the heated air is compressed prior to being admitted to said second cavity and wherein said second

cavity abuts said first cavity and is concentrically aligned to said atomizing ports is ~~concentrically aligned to said atomizing port.~~

Claim 31. cancelled

32. (currently amended) An oil burner assembly as set forth in claim 27 including a seal mounted in said first cavity to engage said nozzle to prevent oil from entering said second cavity ~~24 wherein a seal isolates heated oil from said second cavity~~, and wherein a narrowed region of said third passageway communicates with said second cavity to increase the pressure of air admitted to the second cavity.

Claim 33-39. cancelled

40. (new) An oil burner assembly, comprising:

a) a manifold i) constructed of a unitary body of a thermally transmissive material, ii) having first, second and third internal channels formed in displaced first, second and third tiers in the material, wherein said first channel includes a convoluted portion, a riser portion coupled to said convoluted portion that transects a portion of said second tier and terminates at a first cavity, wherein said third channel terminates at a second cavity concentrically extending from said first cavity, wherein a nozzle having an oil distribution port and an air atomizing port is mounted to said first and second cavities such that said oil distribution port is mounted in sealed engagement to said first cavity and isolated from said air atomizing port which is mounted in said second cavity;

b) sources of pressurized oil, a heated liquid and air coupled to said respective first, second and third channels, wherein said first, second and third channels are arranged such that heat from said heated liquid is transferred through said manifold to elevate the

temperature of said oil and any admitted air immediately prior to discharge from said nozzle; and

c) an igniter mounted to said manifold and aligned to said nozzle to ignite hot oil upon discharge from said nozzle.

41. (new) An oil burner assembly, comprising:

a) a manifold i) constructed of a unitary body of a thermally transmissive material, ii) having first and second continuous, unbroken, convoluted channels, adapted to transfer heat through the material to said first and second channels, and iii) a nozzle having an oil distribution port coupled in sealed engagement to said first channel;

b) sources of a heated liquid and oil respectively coupled to said first and second channels such that the liquid heats the manifold to elevate the temperature of oil admitted to said manifold immediately prior to discharge of said oil from said nozzle; and

c) an igniter mounted to said manifold and aligned to said nozzle to ignite the heated oil upon discharge from said nozzle.

42. (new) An oil burner assembly as set forth in claim 42 wherein said first channel terminates in a first cavity and including a third continuous, unbroken channel that terminates in a second cavity, wherein said nozzle includes an air atomizing port, wherein said nozzle is coupled in sealed engagement to said first channel, wherein a fore end of said nozzle is mounted to said second cavity, and including a source of pressurized air isolated from contact with said oil at said nozzle until the heated oil is emitted from said distribution port, whereby said oil is heated immediately prior to and atomized upon discharge from said nozzle.